

Applying Gamification Principles to Teaching and Learning

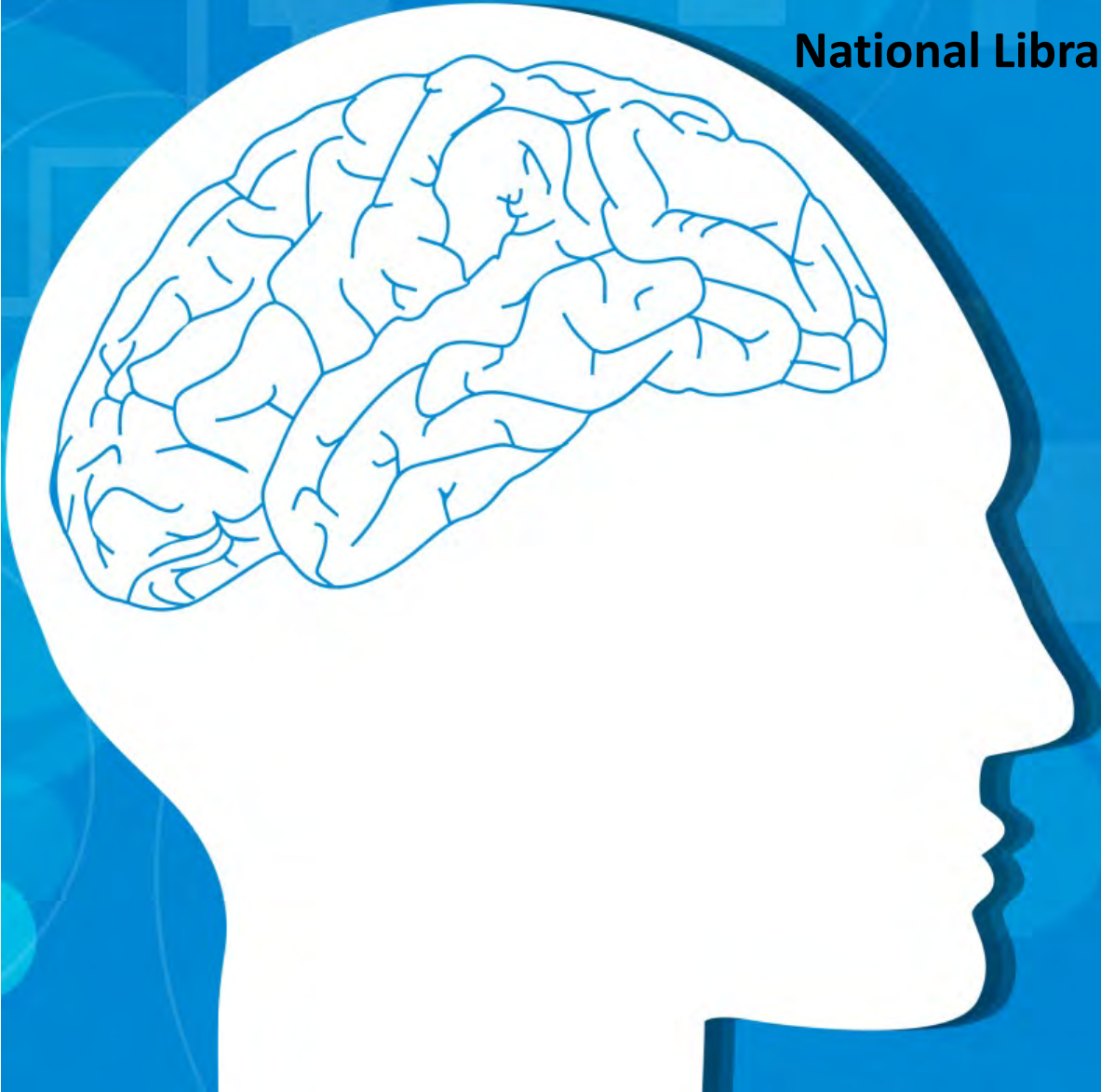
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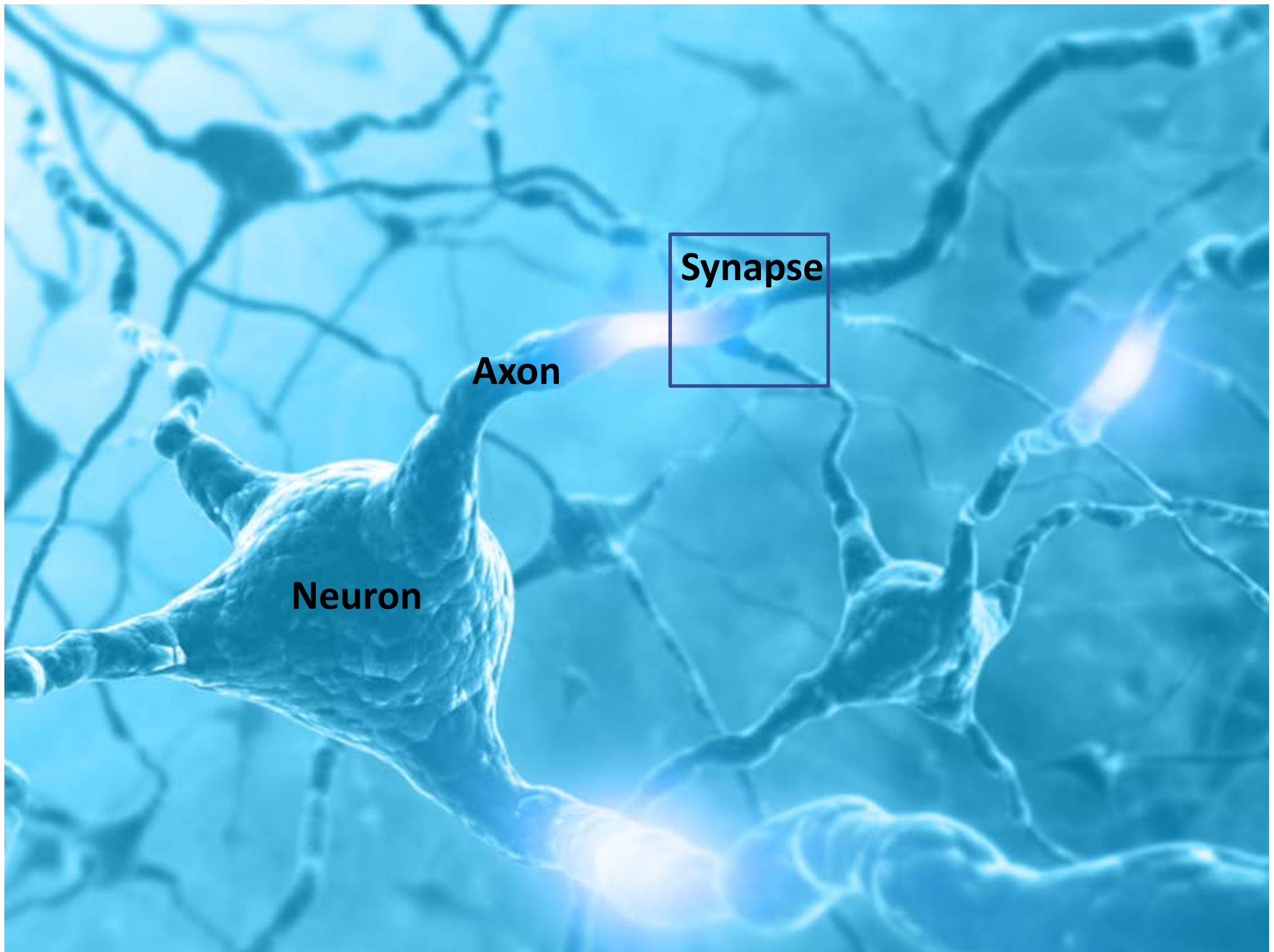
<http://nnlm.gov/ntc/>

Brain-Based Teaching and Learning Strategies

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National Library of Medicine Training Center





Synapse

Axon

Neuron

REPETITION
REPETITION
REPETITION

Give them something to do
a.k.a.
Active Learning

Guide on the Side

TOXLINE DEMONSTRATION



U.S. National
Library of Medicine

TOXNET TOXICOLOGY
DATA NETWORK

[Mobile](#) | [Help](#) | [FAQs](#) | [TOXNET Fact Sheet](#) | [Train](#)

Quiz

The lead poisoning search also searched the synonyms: *olow polish*, *lead flake*, and the *CAS registry number 7439-92-1*.

- ☐ True
☐ False

[TOXNET Home](#) > [TOXLINE](#)



TOXLINE
A TOXNET DATABASE

Toxicology Literature Online (TOXLINE)

SEARCH TOXLINE

BROWSE TOXLINE

ADVANCED SEARCH

e.g. benzene, endocrine disruptor

Search

Search Term

Records with

☒ Include Synonyms and CAS
Numbers in Search

☒ Include PubMed Records

About TOXLINE

What is TOXLINE?

TOXLINE is a bibliographic database with an assortment of citations from specialized journals and other sources. It provides references covering the biochemical, pharmacological, physiological, and toxicological effects of drugs and other chemicals. Most of TOXLINE's bibliographic citations contain abstracts and/or indexing terms and Chemical Abstract Series (CAS) Registry Numbers.

Did you know



How do I lease/license the TOXNET databases?

The following TOXNET databases are available for lease: ChemIDplus, DIRLINE, CCRIS, GENE-TOX, HSDB, and TOXLINE.

For further information visit [Leasing Data](#) from the National Library of Medicine.

Support

Resources

[Help](#)
[Fact Sheet](#)
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[Importing Citations](#)
[Reference Materials](#)

Contact Us

Email: tehip@nlm.nih.gov
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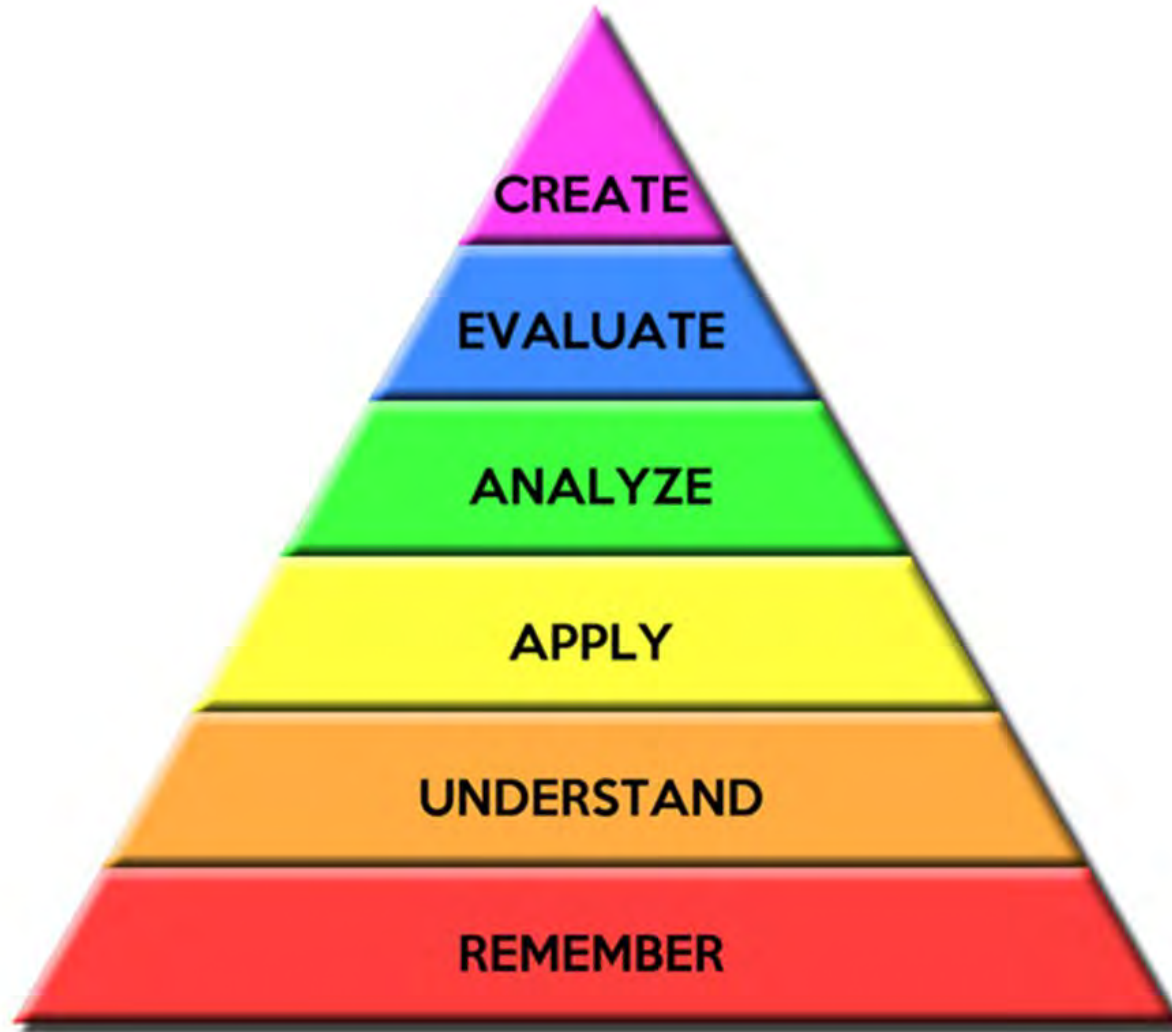
Environment Health & Toxicology

Resources on
health and toxicology

Critical Thinking



Bloom's Pyramid



Patterns/Connections



Patterns/Connections

Navigation bar: < Outlines, Expand, Collapse, Show, Hide, Search, Outline, all, Filters

- 21 ☐ TOXNET In-person [Edit](#)
- 0 ☐ Introduction and Overview [Edit](#)
- 0 ☐ Household Products Database [Edit](#)
- 1 ☐ Risk Assessment [Edit](#)
- 4 ☐ 4 Step Process [Edit](#)
 - 1 ☐ 1) HAZARD IDENTIFICATION or, What Health Problems Are Caused by the substance? [Edit](#)
 - 1 ☐ 2) DOSE-RESPONSE ASSESSMENT or, What Are the Health Problems at Different Exposures? [Edit](#)
 - 0 ☐ 3) EXPOSURE ASSESSMENT or, How Much of a Pollutant are people exposed to during a Specific Time Period? How many people are exposed? [Edit](#)
 - 0 ☐ 4) Risk Characterization or, What is the extra risk of health problems in the exposed populations? [Edit](#)

Padlet

www.libraryref.com/padlet.html

FOLLOW

The word 'FOLLOW' is rendered in large, bold, blue 3D block letters. A white hand cursor with a black outline is positioned over the letter 'O', pointing towards it. The letters have a slight shadow on the surface below them.

FOLLOW

A 3D rendering of the word 'FOLLOW' in blue, bold, sans-serif capital letters. The letters have a slight shadow underneath. A white hand cursor icon with a black outline is positioned over the letter 'O', pointing towards it.

Adding Meaningful Interaction to Your Classes

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Adding Meaningful Interaction

What **IS** interaction?



Ken Bosma, Wikimedia commons, CC BY 2.0



Adding Meaningful Interaction

What **IS** interaction?



Ken Bosma, Wikimedia commons, CC BY 2.0

Adding Meaningful Interaction

Beware the

C _____

C _____

B _____

B _____ !



NEXT

Adding Meaningful Interaction

Get them...

1. Acting

- 2.

- 3.

4. Reflecting

Adding Meaningful Interaction

Acting

Relevant practice

What's the next step?

What did I do wrong? Right?

Adding Meaningful Interaction

Feeling



Teaching a
class is
most like ...



Adding Meaningful Interaction

Connecting

Share experiences and ideas

Work through problems

Defend an opinion

Surveys/Polls

Think-pair-share

Teach back

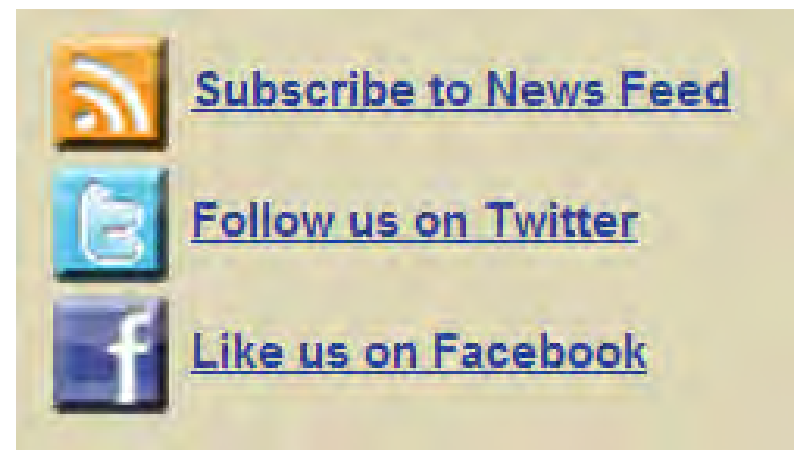
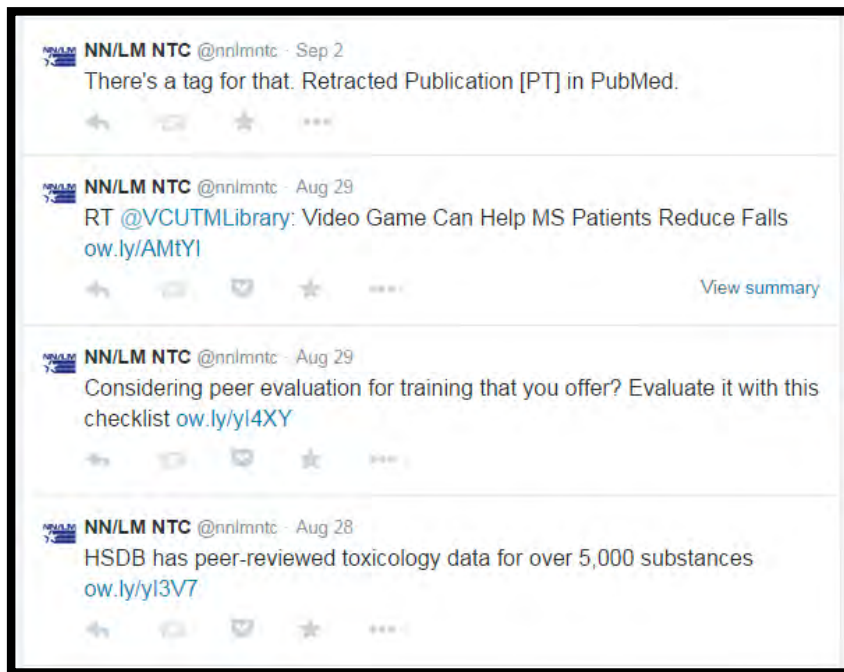
Adding Meaningful Interaction

Reflecting

Thinking about our session today, what are you going to *start*, **stop** or continue doing as a result?

Connect with the NTC

- Follow our blog: <http://nnlm.gov/ntc/>
- Twitter @nnlmntc
- Facebook: <https://www.facebook.com/nnlmntc>



What is Gamification?

- *POLL*

Definition of Gamification

- The use of game elements and game design techniques in non-game contexts to digitally engage and **motivate people to achieve their goals**
- *OR*
- “Making non-game activities more fun and *emotionally* engaging”

What Motivates You?



Key Principles of Gamification

- Goals
- Rules
- Competition / social
- Reward structures
- Constant feedback
- Levels, replay or do over

Traditional Courses

- *POLL*: How are traditional courses different from the gamification key principles?

Gamification Reward Structure

- Points
- Leaderboard
- Badges

Points

- Award points for successful completion of learning activities

















Leaderboard

- My home
- Site pages
- My profile
- This game
 - Mission I'mPossible**
 - Participants
 - Badges
 - General
 - Game Details
 - Mission: Advocacy
 - Mission: Technology
 - Mission: Education
 - Mission: Health Information Literacy
 - Mission Wildcard
 - Agent Forum
 - About This Game
- My courses

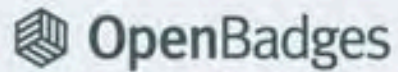
Administration

- Game administration
 - Turn editing on
 - Edit settings
 - Course completion
 - Users
 - Unenrol me from Mission I'mPossible
- Filters
- Reports
- Scores
- Outcomes



	Rank	Name	Wildcard	Advocacy	Education	Technology	Literacy	Total Score
	1		25	50	170	40	135	420
	2		5	0	90	60	40	195
	3		15	25	50	0	0	90
	4		5	0	20	30	10	65
	5		0	50	0	0	0	50
	6		0	0	40	0	0	40
	7		0	10	10	0	10	30
	8		0	10	0	0	10	20

Badges



Open Badges help you share your skills & interests with the world:



www.openbadges.org/



Yipee! You've earned the 747 badge!

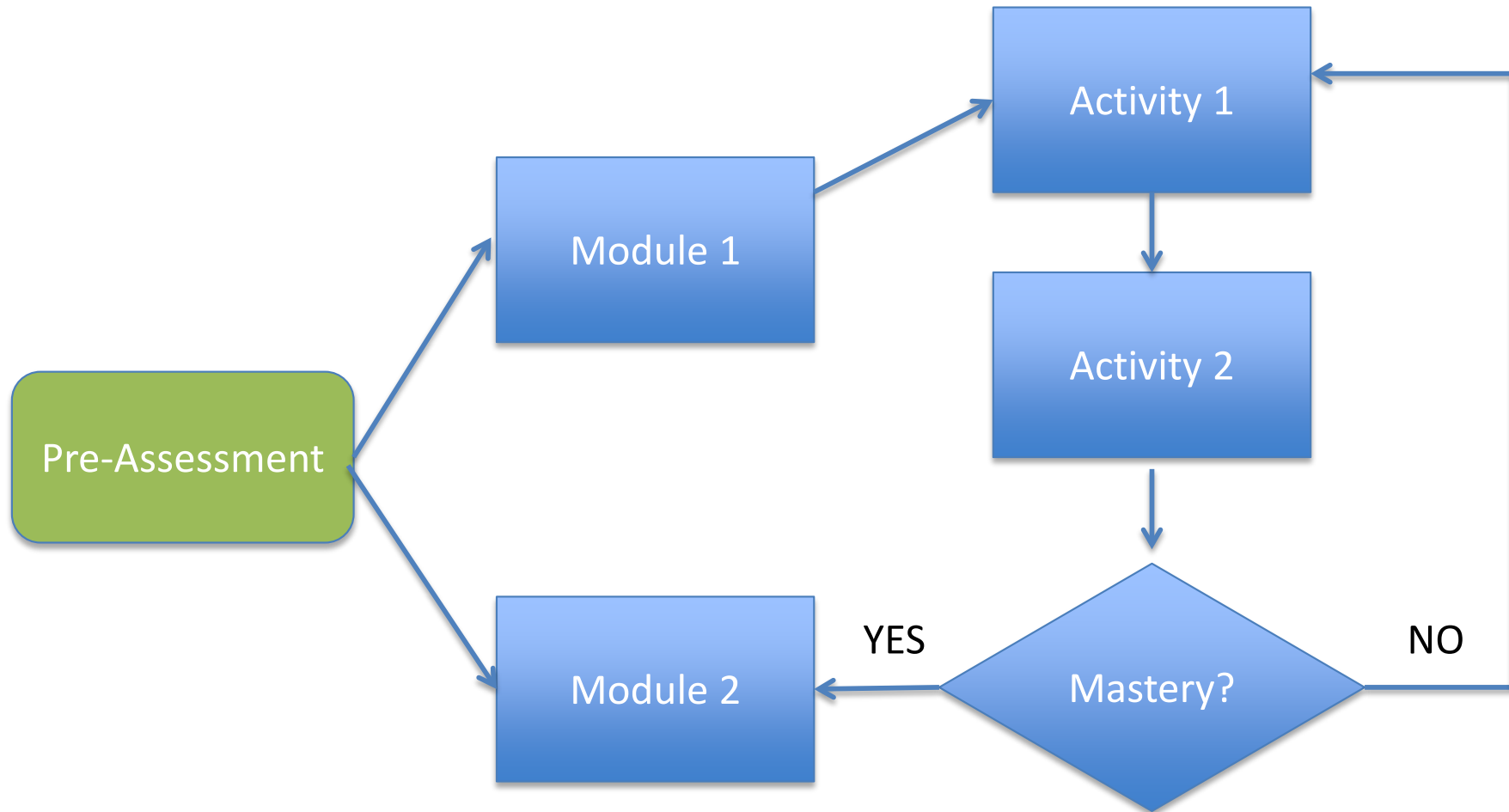
You're flying high at 4,000 floors, and halfway to your next badge!

The Gamified Course

- Varied learning methods
- Personal choice
- Student-paced rather than class-paced
- Social interaction and competition
- Cumulative grading based on points
- Constant feedback
- Students can “re-do” until they reach mastery

What Would the Course Look Like?

- Course structure
- Motivators



Thoughts?

- Credits:
 - Palsole, S. and Pierce, K. “Gamification strategies for scaling efficiency in online courses.” 30th Annual Conference on Distance Teaching & Learning, Madison, WI, August 13, 2014.
 - Leaman, C. “Boost Basic Job Skills Training.” *td Magazine*, August 2014, 34-39.
 - Burke, B. “Why Gamification’s NOT a Game.” <http://blogs.wsj.com/cio/2014/05/06/why-gamifications-not-a-game/>, May 16, 2014.
 - MidContinental Region “I’m Possible” Game, John Bramble and Matthew Steadman. <http://nnlm.gov/mcr/>